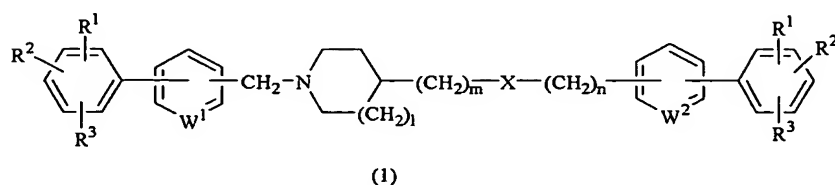


## CLAIMS

1. A preventive or therapeutic agent for pathological conditions caused by reduced production of erythropoietin, comprising as an active ingredient, a cyclic amine compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl; substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof.

2. The preventive or therapeutic agent according to claim 1, wherein  $R^1$ ,  $R^2$  and  $R^3$  are each a hydrogen atom, a halogen atom, a hydroxy group, a  $C_1$ - $C_8$ -alkyl group, a halogen-substituted  $C_1$ - $C_8$ -alkyl, an alkoxy group having a  $C_1$ - $C_8$ -alkyl group, an alkylthio group having a  $C_1$ - $C_8$ -alkyl group, a carboxyl group, an alkoxycarbonyl group having a  $C_1$ - $C_6$ -alkyl group, or an alkanoyl group having a  $C_1$ - $C_6$ -alkyl group.

3. The preventive or therapeutic agent according to claim 1, wherein  $R^4$  each represents a hydrogen atom, a  $C_1$ - $C_8$ -alkyl group,  $C_3$ - $C_8$ -alkenyl group,  $C_3$ - $C_8$ -alkynyl group,

substituted or unsubstituted C<sub>6</sub>-C<sub>14</sub>-aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted C<sub>6</sub>-C<sub>14</sub>-aryl-C<sub>1</sub>-C<sub>6</sub>-alkyl group, or C<sub>1</sub>-C<sub>6</sub>-alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

4. The preventive or therapeutic agent according to claim 3, wherein in R<sup>4</sup>, the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

5. The preventive or therapeutic agent according to claim 1, wherein the active ingredient is

4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

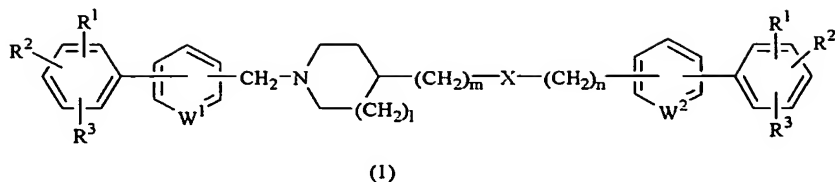
4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.

6. A preventive or therapeutic agent for anemia, comprising as an active ingredient, a cyclic amine compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof.

7. The preventive or therapeutic agent according to claim 6, wherein  $R^1$ ,  $R^2$  and  $R^3$  are each a hydrogen atom, a halogen atom, a hydroxy group, a  $C_1$ - $C_8$ -alkyl group, a halogen-substituted  $C_1$ - $C_8$ -alkyl, an alkoxy group having a  $C_1$ - $C_8$ -alkyl group, an alkylthio group having a  $C_1$ - $C_8$ -alkyl group, a carboxyl group, an alkoxycarbonyl group having a  $C_1$ - $C_6$ -alkyl group, or an alkanoyl group having a  $C_1$ - $C_6$ -alkyl group.

8. The preventive or therapeutic agent according to claim 6, wherein  $R^4$  each represents a hydrogen atom, a  $C_1$ - $C_8$ -alkyl group,  $C_3$ - $C_8$ -alkenyl group,  $C_3$ - $C_8$ -alkynyl group, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl- $C_1$ - $C_6$ -alkyl group, or  $C_1$ - $C_6$ -alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

9. The preventive or therapeutic agent according to claim 8, wherein in R<sup>4</sup>, the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

10. The preventive or therapeutic agent according to claim 6, wherein the active ingredient is

4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

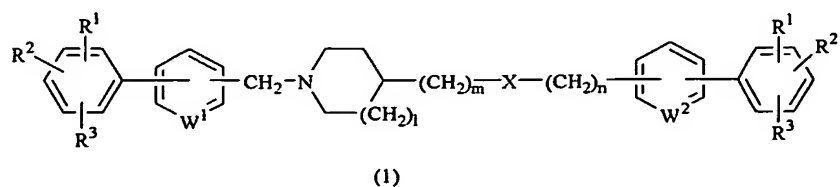
4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.

11. A preventive or therapeutic agent for chronic anemia, renal anemia, anaplastic anemia or pure red cell aplasia, comprising as an active ingredient, a cyclic amine compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof.

12. The preventive or therapeutic agent according to claim 11, wherein  $R^1$ ,  $R^2$  and  $R^3$  are each a hydrogen atom, a halogen atom, a hydroxy group, a  $C_1$ - $C_8$ -alkyl group, a halogen-substituted  $C_1$ - $C_8$ -alkyl, an alkoxy group having a  $C_1$ - $C_8$ -alkyl group, an alkylthio group having a  $C_1$ - $C_8$ -alkyl group, a carboxyl group, an alkoxycarbonyl group having a  $C_1$ - $C_6$ -alkyl group, or an alkanoyl group having a  $C_1$ - $C_6$ -alkyl group.

13. The preventive or therapeutic agent according to claim 11, wherein  $R^4$  each represents a hydrogen atom, a  $C_1$ - $C_8$ -alkyl group,  $C_3$ - $C_8$ -alkenyl group,  $C_3$ - $C_8$ -alkynyl group, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl- $C_1$ - $C_6$ -alkyl group, or  $C_1$ - $C_6$ -alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

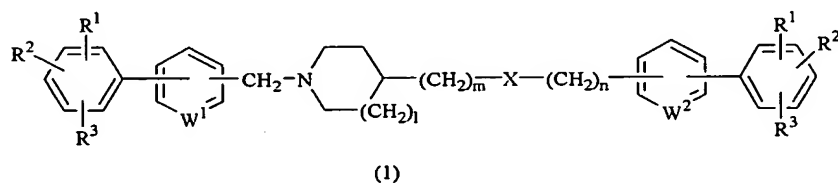
14. The preventive or therapeutic agent according to claim 13, wherein in  $R^4$ , the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group,

an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

15. The preventive or therapeutic agent according to claim 11, wherein the active ingredient is

4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.

16. Use of a cyclic amine compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

R<sup>4</sup> each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof for the manufacture of a preventive or therapeutic agent for pathological conditions caused by reduced production of erythropoietin.

17. The use according to claim 16, wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are each a hydrogen atom, a halogen atom, a hydroxy group, a C<sub>1</sub>-C<sub>8</sub>-alkyl group, a halogen-substituted C<sub>1</sub>-C<sub>8</sub>-alkyl, an alkoxy group having a C<sub>1</sub>-C<sub>8</sub>-alkyl group, an alkylthio group having a C<sub>1</sub>-C<sub>8</sub>-alkyl group, a carboxyl group, an alkoxycarbonyl group having a C<sub>1</sub>-C<sub>6</sub>-alkyl group, or an alkanoyl group having a C<sub>1</sub>-C<sub>6</sub>-alkyl group.

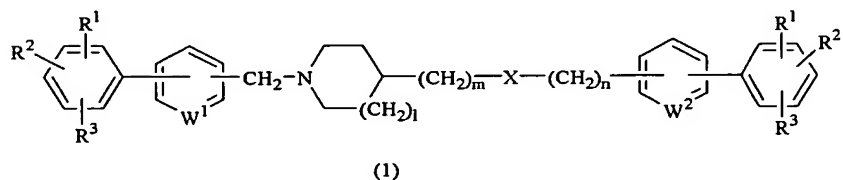
18. The use according to claim 16, wherein R<sup>4</sup> each represents a hydrogen atom, a C<sub>1</sub>-C<sub>8</sub>-alkyl group, C<sub>3</sub>-C<sub>8</sub>-alkenyl group, C<sub>3</sub>-C<sub>8</sub>-alkynyl group, substituted or unsubstituted C<sub>6</sub>-C<sub>14</sub>-aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted C<sub>6</sub>-C<sub>14</sub>-aryl-C<sub>1</sub>-C<sub>6</sub>-alkyl group, or C<sub>1</sub>-C<sub>6</sub>-alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

19. The use according to claim 18, wherein in R<sup>4</sup>, the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

20. The use according to claim 16, wherein the active ingredient is  
4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5'-trimethoxyphenyl)pyridine-3-yl]methyl]amino]

-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]  
 amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]  
 methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-  
 trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]  
 amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt  
 thereof.

21. Use of a cyclic amine compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof for the manufacture of a preventive or therapeutic agent for anemia.



22. The use according to claim 21, wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are each a hydrogen atom, a halogen atom, a hydroxy group, a C<sub>1</sub>-C<sub>8</sub>-alkyl group, a halogen-substituted C<sub>1</sub>-C<sub>8</sub>-alkyl, an alkoxy group having a C<sub>1</sub>-C<sub>8</sub>-alkyl group, an alkylthio group having a C<sub>1</sub>-C<sub>8</sub>-alkyl group, a carboxyl group, an alkoxycarbonyl group having a C<sub>1</sub>-C<sub>6</sub>-alkyl group, or an alkanoyl group having a C<sub>1</sub>-C<sub>6</sub>-alkyl group.

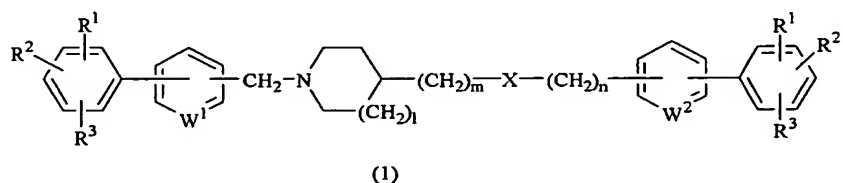
23. The use according to claim 21, wherein R<sup>4</sup> each represents a hydrogen atom, a C<sub>1</sub>-C<sub>8</sub>-alkyl group, C<sub>3</sub>-C<sub>8</sub>-alkenyl group, C<sub>3</sub>-C<sub>8</sub>-alkynyl group, substituted or unsubstituted C<sub>6</sub>-C<sub>14</sub>-aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted C<sub>6</sub>-C<sub>14</sub>-aryl-C<sub>1</sub>-C<sub>6</sub>-alkyl group, or C<sub>1</sub>-C<sub>6</sub>-alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

24. The use according to claim 23, wherein in R<sup>4</sup>, the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

25. The use according to claim 21, wherein the active ingredient is  
 4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.

26. Use of a cyclic amine compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl; substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof for the manufacture of a preventive or therapeutic agent for chronic anemia, renal anemia, aplastic anemia, or pure red cell aplasia.

27. The use according to claim 26, wherein  $R^1$ ,  $R^2$  and  $R^3$  are each a hydrogen atom, a halogen atom, a hydroxy group, a  $C_1$ - $C_8$ -alkyl group, a halogen-substituted  $C_1$ - $C_8$ -alkyl, an alkoxy group having a  $C_1$ - $C_8$ -alkyl group, an alkylthio group having a  $C_1$ - $C_8$ -alkyl group, a carboxyl group, an alkoxycarbonyl group having a  $C_1$ - $C_6$ -alkyl group, or an alkanoyl group having a  $C_1$ - $C_6$ -alkyl group.

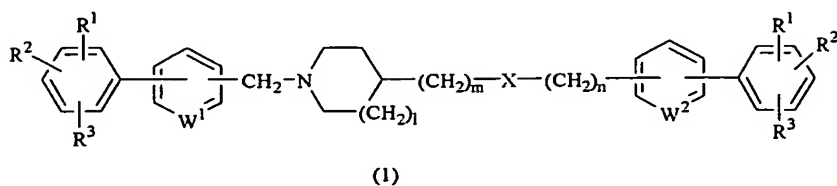
28. The use according to claim 26, wherein  $R^4$  each represents a hydrogen atom, a  $C_1$ - $C_8$ -alkyl group,  $C_3$ - $C_8$ -alkenyl group,  $C_3$ - $C_8$ -alkynyl group, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl- $C_1$ - $C_6$ -alkyl group, or  $C_1$ - $C_6$ -alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

29. The use according to claim 28, wherein in  $R^4$ , the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

30. The use according to claim 21, wherein the active ingredient is  
 4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
 4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.

31. A method of treating pathological conditions caused by reduced production of erythropoietin, comprising administering an effective amount of a cyclic amine

compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof.

32. The method according to claim 31, wherein  $R^1$ ,  $R^2$  and  $R^3$  are each a hydrogen atom, a halogen atom, a hydroxy group, a  $C_1$ - $C_8$ -alkyl group, a halogen-substituted  $C_1$ - $C_8$ -alkyl, an alkoxy group having a  $C_1$ - $C_8$ -alkyl group, an alkylthio group having a  $C_1$ - $C_8$ -alkyl group, a carboxyl group, an alkoxycarbonyl group having a  $C_1$ - $C_6$ -alkyl group, or an alkanoyl group having a  $C_1$ - $C_6$ -alkyl group.

33. The method according to claim 31, wherein  $R^4$  each represents a hydrogen atom, a  $C_1$ - $C_8$ -alkyl group,  $C_3$ - $C_8$ -alkenyl group,  $C_3$ - $C_8$ -alkynyl group, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl- $C_1$ - $C_6$ -alkyl group, or  $C_1$ - $C_6$ -alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

34. The method according to claim 33, wherein in R<sup>4</sup>, the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

35. The method according to claim 31, wherein the active ingredient is

4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

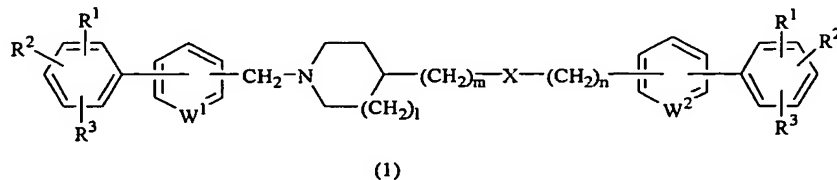
4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.

36. A method of treating anemia, comprising administering an effective amount of a cyclic amine compound represented by the following formula (1):



wherein,

R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> each independently represent a hydrogen atom, a halogen atom, or

hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, substituted or unsubstituted aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof.

37. The method according to claim 36, wherein  $R^1$ ,  $R^2$  and  $R^3$  are each a hydrogen atom, a halogen atom, a hydroxy group, a  $C_1$ - $C_8$ -alkyl group, a halogen-substituted  $C_1$ - $C_8$ -alkyl, an alkoxy group having a  $C_1$ - $C_8$ -alkyl group, an alkylthio group having a  $C_1$ - $C_8$ -alkyl group, a carboxyl group, an alkoxycarbonyl group having a  $C_1$ - $C_6$ -alkyl group, or an alkanoyl group having a  $C_1$ - $C_6$ -alkyl group.

38. The method according to claim 36, wherein  $R^4$  each represents a hydrogen atom, a  $C_1$ - $C_8$ -alkyl group,  $C_3$ - $C_8$ -alkenyl group,  $C_3$ - $C_8$ -alkynyl group, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl- $C_1$ - $C_6$ -alkyl group, or  $C_1$ - $C_6$ -alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

39. The method according to claim 38, wherein in  $R^4$ , the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetamino group, trifluoromethyl group and alkylenedioxy group.

40. The method according to claim 36, wherein the active ingredient is

4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

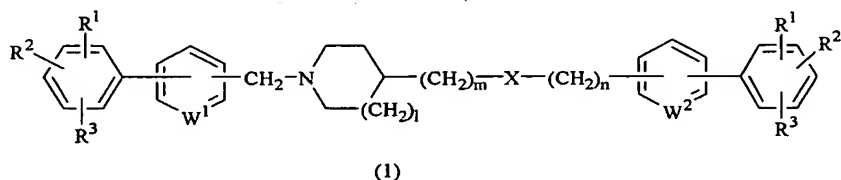
4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;

4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.

41. A method of treating chronic anemia, renal anemia, aplastic anemia, or pure red cell aplasia, comprising administering an effective amount of a cyclic amine compound represented by the following formula (1):



wherein,

$R^1$ ,  $R^2$  and  $R^3$  each independently represent a hydrogen atom, a halogen atom, or hydroxy, alkyl, halogen-substituted alkyl, alkoxy, alkylthio, carboxyl, alkoxycarbonyl or alkanoyl group;

$W^1$  and  $W^2$  each independently represent N or CH;

X represents O,  $NR^4$ ,  $CONR^4$  or  $NR^4CO$ ;

$R^4$  each represents a hydrogen atom, or an alkyl, alkenyl, alkynyl, substituted or unsubstituted aryl, substituted or unsubstituted heteroaryl, substituted or unsubstituted

aralkyl, or substituted or unsubstituted heteroaralkyl group; and

l, m and n each represents a number of 0 or 1, or a salt thereof or a solvate thereof.

42. The method according to claim 41, wherein  $R^1$ ,  $R^2$  and  $R^3$  are each a hydrogen atom, a halogen atom, a hydroxy group, a  $C_1$ - $C_8$ -alkyl group, a halogen-substituted  $C_1$ - $C_8$ -alkyl, an alkoxy group having a  $C_1$ - $C_8$ -alkyl group, an alkylthio group having a  $C_1$ - $C_8$ -alkyl group, a carboxyl group, an alkoxycarbonyl group having a  $C_1$ - $C_6$ -alkyl group, or an alkanoyl group having a  $C_1$ - $C_6$ -alkyl group.

43. The method according to claim 41, wherein  $R^4$  each represents a hydrogen atom, a  $C_1$ - $C_8$ -alkyl group,  $C_3$ - $C_8$ -alkenyl group,  $C_3$ - $C_8$ -alkynyl group, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl group, substituted or unsubstituted heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms, substituted or unsubstituted  $C_6$ - $C_{14}$ -aryl- $C_1$ - $C_6$ -alkyl group, or  $C_1$ - $C_6$ -alkyl group having heteroaryl group having 5- or 6-membered ring containing 1-4 nitrogen atoms.

44. The method according to claim 43, wherein in  $R^4$ , the substituent of an aryl group, an aryl group of aralkyl group, heteroaryl group, or heteroaryl group of heteroaralkyl group is 1-3 groups selected from the group consisting of alkyl group, alkoxy group, alkylthio group, a halogen atom, a nitro group, an amino group, an acetylamino group, trifluoromethyl group and alkylenedioxy group.

45. The method according to claim 41, wherein the active ingredient is  
4-[N-(4-methoxyphenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
4-[N-(3,5-dimethoxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
4-[N-(3,4-methylenedioxyphenyl)-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]



methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
4-[N-methyl-N-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine;  
4-[N-(4-(methylthio)phenyl)-N-[[5-(3,4,5-trimethoxyphenyl)pyridine-3-yl]methyl]amino]-1-[[2-(3,4,5-trimethoxyphenyl)pyridine-4-yl]methyl]piperidine; or a salt thereof.